

ONS000556
PATENT

S.N. 10/811,050

REMARKS

The allowability of claims 12 and 13 is noted.

Claims 1, 3-6, 8, 10-15, and 20-23 are in the present application.

Claims 16-19 are cancelled.

Claims 2, 7, and 9 were cancelled by a previous amendment.

The finality of the Restriction Requirement is noted.

35 USC 102 Rejection:

Claims 1, 3-6, 8, 10, 11, 14, 15, and 20-23 were rejected under 35 USC 102 as being anticipated by United States patent number 6,717,829 issued to Appeltans ("Appeltans"). This rejection is respectfully traversed.

Applicants' claim 1 includes at least three elements that are not disclosed by Appeltans. Among other features, claim 1 includes:

1) receive an operating voltage for operating the charge pump controller from a second voltage supply that is external to the charge pump controller and used for operating the charge pump controller,

2) wherein the charge pump controller is configured to derive a pump voltage to charge the output capacitor from the second voltage supply,

3) and wherein the second value of the second voltage supply is independent of the first voltage supply.

Appeltans does not disclose:

1) a second voltage supply that is external to the charge pump controller and used for operating the charge pump controller. The Office Action proposes that the second voltage from Appeltans's transistor 9 is external to a

ONS000556
PATENT

S.N. 10/811,050

controller of the Appeltans switches. However, one skilled in the art will appreciate that a charge pump controller can not be merely just an assortment of switches alone but must also elements to control the switches. In fact, Appeltans states in column 2, lines 13-17, that circuit 1 is a charge pump circuit and that circuit 1 receives a DC input voltage Vin and further states in column 3, lines, 25-26 that FIG. 2 has elements of FIG. 1 having the same reference numbers. Thus, if Vin of FIG. 2 is an input voltage to the charge pump controller how can the internal voltage from transistor 9 that is internal to the controller be received from external to the controller of circuit 1.

Even if the voltage from transistor 9 could be such an external voltage, the voltage from transistor 9 is not used for the voltage to operate the controller. Appeltans uses the voltage Vin as the operating voltage for the controller.

For these two reasons, applicants respectfully submit that the interpretation of the second operating voltage in the Office Action is not supported by the disclosed subject-matter of Appeltans.

2) derive the pump voltage from the second voltage. The Office Action proposes that the voltage from Appeltans's transistor 9 is a second voltage. For such an interpretation, the pump voltage is equal to such a second voltage from transistor 9. However, claim 1 calls for the pump voltage to be derived from the second voltage. Thus, the pump voltage as proposed by the Office Action is not derived from the second voltage but is the second voltage.

3) wherein the second value of the second voltage supply is independent of the first voltage supply. The Office Action proposes that the second voltage is supplied by Appeltans's transistor 9. For such an interpretation,

ONS000556
PATENT

S.N. 10/811,050

the second voltage is merely the input voltage Vin minus the threshold voltage of transistor 9, thus, such a second voltage is not independent of the value of the input voltage Vin but is dependent upon the value of voltage Vin. As Vin changes, the voltage from transistor 9 changes.

Because it is well established that all claim limitations must be considered when examining a claim verses a reference, applicants respectfully submit that at least these limitations of claim 1 are not disclosed by Appeltans. Accordingly, it is respectfully submitted that Appeltans cannot anticipate claim 1.

Claims 3-6 and 20-22 depend from claim 1 and are believed to be allowable for least the same reasons as claim 1.

Additionally, claim 4 includes, among other things, couple the pump voltage across the pump capacitor to the output capacitor. At least this element of claim 4 is not disclosed by Appeltans. Appeltans does not couple the pump voltage across capacitor 1 to capacitor 2 as required by claim 4. In fact, Appeltans couples the voltage that is stored on capacitor 1 to capacitor 2, not across capacitor 1 to another element. Accordingly, it is respectfully submitted that claim 4 can not be anticipated by Appeltans.

Thus, even if claim 1 were determined to be disclosed by Appeltans, claim 4 would still be allowable.

Also, claim 21 includes, among other features, configuring the charge pump controller to form a drive signal that controls switching the output capacitor into a charging configuration during a first portion of the drive signal and that controls switching the output capacitor into a non-charging configuration during a second portion of the

ONS000556
PATENT

S.N. 10/811,050

drive signal and that also couples the pump voltage from the drive signal to the output capacitor. Appeltans does not disclose a drive signal that couples the pump voltage from the drive signal to the output capacitor and that also controls switching the capacitor configuration switches. Appeltans discloses using two different drive signals labeled as phase 1 and phase 2 to control the switching of capacitor 1. At the least, Appeltans does not disclose coupling the value of the drive signal to the pump capacitor. Thus, at least this element of claim 21 is not disclosed by Appeltans.

Claim 22 includes configuring the charge pump controller to form a drive signal wherein the drive signal has a value that is substantially equal to the pump voltage. At least this element of claim 22 is not disclosed by Appeltans. Appeltans does not disclose that the drive signals, labeled as phase 1 and phase 2, have a value that is substantially equal to the pump voltage. In fact, it is believed that Appeltans's drive signals can not have a value of the pump voltage since the pump voltage is set by transistor 9 as stated in the Office Action. Accordingly, it is respectfully submitted that Appeltans cannot anticipate claim 22.

Claim 8 includes at least one limitation that is not disclosed by Appeltans. Claim 8 includes a second supply voltage that is different from the first supply voltage, the charge pump controller configured to use the second supply voltage for the operating supply of the charge pump controller and configured to form a pump voltage that is derived from the operating supply.

ONS000556
PATENT

S.N. 10/811,050

Appeltans does not disclose a second supply voltage that is used for the operating supply of the charge pump controller and for deriving the pump voltage. Appeltans uses the first supply voltage, Vin, as the operating supply to provide operating power to the charge pump controller including timer 10. Appeltans forms the voltage from transistor 9 from Vin, and uses the voltage from transistor 9 as the pump voltage. Appeltans does not disclose that the voltage from transistor 9 (used or the pump voltage) is used for the operating supply of the charge pump controller as required by claim 8. Accordingly, it is respectfully submitted that claim 8 cannot be anticipated by Appeltans.

Claims 10-11, 14, 15, and 23 depend from claim 8 and are believed to be allowable for least the same reasons as claim 8.

Additionally, claim 11 includes couple the pump voltage from the charge pump controller across the pump capacitor to the output capacitor. Appeltans does not disclose that capacitor 1 couples voltage Vref across capacitor 1 to capacitor 2. In fact, Appeltans teaches that capacitor 1 is coupled in parallel with capacitor 2 and transfers the voltage that is stored on capacitor 1 to capacitor 2, not across capacitor 1 to capacitor 2. Accordingly, it is respectfully submitted that Appeltans does not disclose claim 11.

ONS000556
PATENT

S.N. 10/811,050

CONCLUSION

Applicant(s) made an earnest attempt to place this case in condition for allowance. In view of all of the above, it is believed that the claims are allowable, and that the case is now in condition for allowance, which action is earnestly solicited.

Although it is believed that no fees are to be due for this amendment, the Commissioner is hereby authorized to charge any fees that may be required or credit any overpayment to Deposit Account 50-1086.

If there are matters which can be discussed by telephone to further the prosecution of this Application, the Examiner is invited to call the undersigned attorney at the Examiner's convenience.

Respectfully submitted,
Stephen Meek et al., by

Robert F. Hightower

ON Semiconductor
Law Dept./MD A700
P.O. Box 62890
Phoenix, AZ 85082-2890

Robert F. Hightower
Attorney for Applicant(s)
Reg. No. 36163
Tel. (602) 244-5603

Customer #: 27255